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COVER: A U.S. Coast Guard security member patrols near USNS *Mercy* (T-AH 19) during Desert Shield/ Storm. A new initiative—Readiness Reengineering—is under way helping prepare the Navy Medical Department for similar operations in the future. Stories on pages 6, 7, 12, and 13.

Hospital Corpsmen Awarded Medals for Heroism

HM2(SS) Craig C. Mullen and HM2 Edward A. Diaz were recently awarded the Navy and Marine Corps Medal for heroism in ceremonies conducted at Naval Medical Center, Portsmouth (NMCP), VA. The medals were presented by MAJGEN Michael DeLong, Deputy Commander, Marine Forces, U.S. Atlantic Fleet.

The medal, one of the nation's highest peacetime awards, was presented to Mullen and Diaz for heroism on 31 July 1996, while serving with Mobile Medical Augmentation Readiness Team (MMART)/Surgical Team Two, Marine Air-Ground Task Force Eight, Monrovia, Liberia. The two corpsmen were directly instrumental in rescuing a U.S. Embassy employee who was injured when the vehicle he was driving was struck from behind by a fuel truck.

HM1 T. Price

HM2(SS) Mullen (left) and HM2 Diaz proudly wear the Navy and Marine Corps Medal for heroism they earned while serving with MMART/Surgical Team Two at the U.S. Embassy, Monrovia, Liberia.

Mullen and Diaz were on duty at the U.S. Embassy Health Unit when the call came in that there had been a motor vehicle accident in the downtown area. The two volunteered to carry out the rescue of the embassy employee although no embassy personnel had previously been permitted to leave the compound due to the extreme instability in the region.

Mullen and Diaz gathered their medical supplies and departed in the embassy vehicle. "As we crested a hill leading into the city we saw the crowd for the first time. The road seemed to be covered in a sea of people," said Mullen. "Nervousness was overrun by fear, and the sense that something was very, very wrong was overwhelming. The closer we got to the scene the thicker the crowd got so we initially passed the scene of the accident," he continued.

Upon finally locating the vehicle imbedded in the side of a building and facing the ever-present danger of the leaking fuel truck and an angry crowd of 300 to 500 Liberian nationals, the corpsmen immediately assessed the situation. "The first thing I recall about this mission was the extreme heat. I felt as though I had stepped out of a sauna and into the pits of hell," Diaz said.

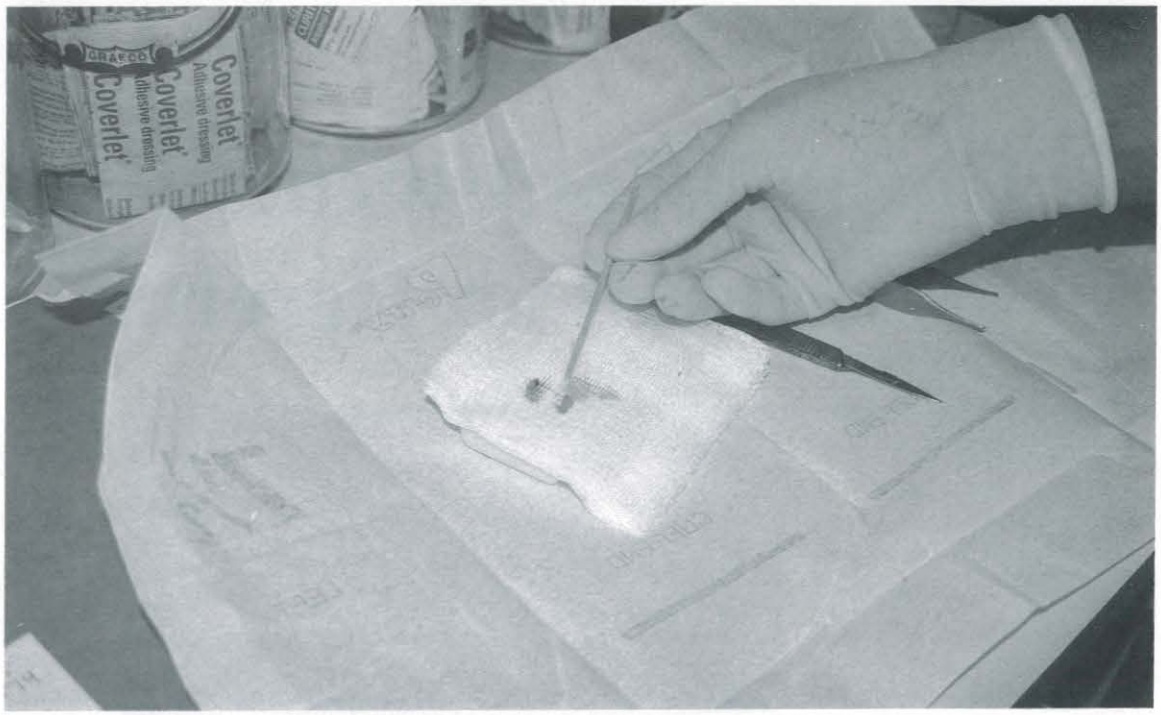
After assessing the patient's condition, the two noticed the fuel fumes were getting much stronger as the gas steadily creeped toward them. The two corpsmen decided to evacuate the patient even though they had no backboard or gurney. "Even with possible spinal trauma, we had to get him out of there fast—one cigarette or spark and all of us would have gone up in a ball of flame," said Mullen. Finally arriving back at the embassy, the patient was examined by a doctor who determined that he should be transferred to the local hospital for further treatment and observation.

"Several hours afterward, when the adrenaline had worn off, I started thinking about what we had done. My first thought was that my son was very close to having grown up without knowing who his daddy was," Mullen said.

Diaz summed up his feelings this way. "Unlike John Wayne in the movies, I was truly scared. I have learned through this experience that there is truly a God and only because of his watchful eyes did we make it through this mission unscathed." ❑

—Story by Dan Gay, Public Affairs Office, Naval Medical Center, Portsmouth, VA.

The tumor is dyed on a side to ease the mapping. The size of the specimen is determined by the size of the tumor. . . .



First Mohs Micrographic Surgery Performed at NMCP

. . . The specimen is then frozen to the slide in preparation for slicing into very thin slides.

Each year, thousands of cases of skin cancer are treated in the United States and the problem is getting worse. Because the cancer-causing effects of sunlight are cumulative, skin cancer specialists are only now seeing the results of the sun-worshipping that swept the United States during the last generation.

Since the procedure's development by Dr. Frederic Mohs approximately 40 years ago, Mohs micrographic surgery has consistently proven to be the most effective method for the treatment of skin cancers. Previously, surgeons would remove any tumor and some skin around the tumor, and just "guess" where the cancer was. The goal was to get enough tissue to assume that the cancer was removed as well. This procedure was somewhat effective at cancer removal and very effective at leaving a large scar. Mohs micrographic surgery takes the minimum amount of tissue and maps the borders of the cancer, ensuring its total removal.

CAPT Padman Menon, of the Naval Medical Center, Portsmouth (NMCP), VA, dermatology department, performed the first Mohs micrographic surgery at NMCP on 10 Dec 1997. He trained for 1 year, then was nationally certified in Mohs surgery before transferring to NMCP to start the Mohs program. Prior cases requiring Mohs surgery were referred to the National Naval Medical Center, Bethesda, MD, or Walter Reed Army Medical Center, Washington, DC. Working alongside the surgeon is the specially trained lab tech. HM2 Charles Balo also trained at Bethesda to learn the special lab techniques required for the procedure.

CDR James Carbone (Ret.) was the first patient to undergo the surgery. He had been previously diagnosed with skin cancer, a small tumor just below his right eye. He weighed all his options and chose Mohs, here at NMCP. "I think it's [Mohs micrographic surgery] great," said Carbone. "[We all] got sunburned as kids and no one thought twice. I guess it catches up with you."

The procedure is rather simple. After numbing the skin with a local anesthetic, the visible tumor is removed with a sharp spoon-shaped curette. A small margin of skin around the edge of the curetted wound is removed and a map of this excised tissue is drawn on paper, and the edges dyed.

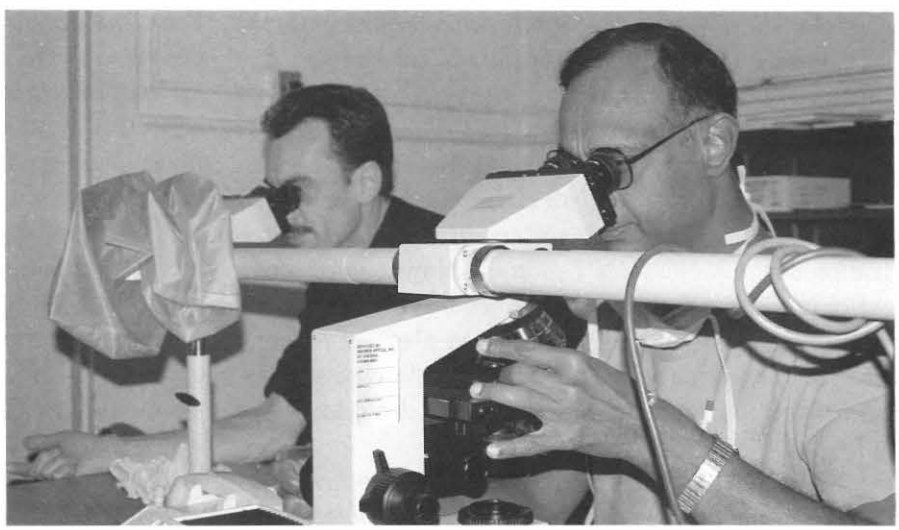
The skin is then processed in the tissue laboratory, which takes approximately 45 minutes. All specimens are mounted on slides, frozen, then sliced very thin and viewed by the physician. The traditional sectioning of skin cancers called "breadloafing," is when the tumor is sectioned as a loaf of bread might be, and selected "slices" are examined under the microscope. Mohs surgeons map the entire margins of the cancer to ensure its removal, while breadloafing only allows the surgeon to view random samples. By using the microscope to examine all the skin edges of the excised cancer tissue, the Mohs surgeon is able to remove 100 percent of the skin cancer and remove as little normal skin as possible. Cure rate exceeds 99 percent for most skin cancers using the Mohs technique.

The slide preparation is of utmost importance, so the physician can map the edges of the tumor. The Mohs surgeon then examines the tissue under the microscope, and if any residual tumor is found, it is mapped precisely on the drawing. The Mohs surgeon then returns to the patient and removes only a small portion of skin shown under the microscope to harbor residual skin cancer. The laboratory processing and microscopic interpretation are then repeated sequentially until all the tumor is removed.

Although Mohs technique may require a number of stages, this is rarely the case. Approximately 50 percent of non-melanoma skin cancers are treated in only one stage and nearly 90 percent are effectively treated after three stages. The wound is either repaired surgically or allowed to heal on its own depending upon the location of the tumor.

Carbone had no complications. Thanks to the Mohs technique and the skill of Dr. Menon, his surgery was successful. "I'm lucky to have him (Dr. Menon) here," said Carbone. ❑

—Story and photos by HM3 Amy Watson, Public Affairs Office, Naval Medical Center, Portsmouth, VA.



CAPT Menon (right) and HM2 Balo examine the slides to determine if there is any cancer left behind.

VTT Is Moving Information . . . Not People

LCDR Mark Bryson, MSC, USN

"The illiterate of the 21st century will not be those who cannot read or write, but those who cannot learn, unlearn and relearn." —Alvin Toffler

The rudiments of documented accounting and finance theory can be traced back to 1494. Much has changed during the last 500 years since the Franciscan monk Luca Paciolo first addressed these concepts in his treatise *De Computis et Scripturis.(1)* Yet much has remained relatively unchanged. The *mechanics* of bookkeeping and accounting is not unlike the early days. What has changed, however, is the *method* by which transactions and procedures are accomplished. We have progressed from "ink and quill" to computer, fax, and credit card as means for manipulating financial information. Through technological advance, education has made quantum leaps in the delivery of information from instructor to student. The Financial and Materials Management Course (FMMTC) at Naval School of Health Sciences, Bethesda, MD, is 20 years old this year and has graduated over 400 students. As recently as 10 years ago all classroom work consisted of "stubby pencil" research and reports, and rote memorization of the *NAVCOMPT Manual*. Now, comptrollers and logisticians are better prepared for their volatile environment through well-coordinated lesson plans, computer-enhanced programs and simulation models, case studies, and now the latest in modern technology—Video Teletraining (VTT).

VTT, a form of distance learning, is an interactive form of video conferencing whereby the instructor presents the lesson from a studio located at one of a number of sites throughout the United States, including two aircraft carriers. Students receive lessons in other studio classrooms, sometimes thousands of miles away. The key is that it is completely interactive, the crux of a successful educational process.

FMMTC has successfully used the VTT process for two modules, both transmissions from San Diego, CA. However, initial apprehension from the FMMTC instructor ranged from "guarded optimism" to "genuine reluctance." Reasons not to embrace this program were many and varied. First, the initial *change* in the way the curriculum was delivered and received was perceived as a negative. People are basically uncomfortable with change. Even though educators are taught to welcome change, this evolution invaded our comfort zone. Next, we were uncomfortable with the *learning environment*. Would the students focus on the technology and miss the point of the lesson? Would the speaker lose focus on his delivery due to the environment. Would the *technology* be fraught with glitches during transmission and reception? This last concern was especially vexing because the tightly structured and carefully planned curriculum was unforgiving in that modules of instruction are constructed based on competencies achieved in previous lessons. We could not afford downtime. We were also concerned with the *interactive* component of the

program. Would the students feel *comfortable* enough in this setting to ask questions "on the air" or would the educational process and teachable moment be lost to personal insecurities that may not present in a traditional classroom.

It soon became apparent that there would be some reality to each of these concerns. It was not unlike taking that first step from pen and paper to computerized word processing or logging onto the Internet that first time. There were minor setbacks but none hindered the educational process to the extent originally anticipated. This may be attributed to the fact that repetition and familiarity breed an increased comfort level. Also, military personnel and civilian employees may be more accustomed to changing venues and environments than the general population.

Although much has been said about the negatives, they were significantly overshadowed by the positive aspects of the endeavor (see box). First and foremost, in this era of dwindling resources we realized *financial savings* of over $500 per module in unused travel and per diem costs. One of the instructors at the remote site had only to walk down three flights of stairs to the studio! Additionally, there was an issue of *time savings* in that the instructors at the remote site were lost to their activities for only the amount of time that it took to teach a particular course. Traditionally, they would have been away for 2-3 days due to travel time. Also, *economies of scale* were achieved by using two classrooms (studios) and thereby educating twice as many students as would otherwise benefit from the training. Further, the *interactive component* enhances the learning process by not only affording dialogue between the instructor and student, but by providing students in both studios the ability to glean information from each other's experiences as well as that of the instructor.

This technology provides an avenue for incorporating additional, yet distant, subject matter experts (SMEs) into the curriculum at minimal cost. Although the majority of our SMEs are local, it is beneficial to garner the "field level" perspective on emerging issues and how headquarters directives are implemented and function at subordinate commands. This technology lends itself nicely to this concept. A by-product of this technology is what I call "*inherent training*," that is the training which is encapsulated within the module itself. It forces speakers to become more effective and comfortable at presenting the lesson in front of the camera. Students are learning this concept from the speaker in addition to the lesson plan but also become more comfortable at speaking before an audience themselves. Finally, VTT and distance learning provides *credibility to the organization*. It provides solid evidence that the command is willing and able to change; to provide a setting for the growth and maturation of its students.

VTT "The Right Thing to Do"

- **Financial savings** through reduced travel and per diem costs
- **Time savings** in reduced time away from the work site
- **Economies of scale** achieved through utilization of multiple studio classrooms, educating many more students simultaneously
- **Interactive component** enhances the "teachable moment"
- **Increased capability** to draw remote SMEs
- **Win-win training opportunity** for students and instructors
- **Organizational demonstration of competence** in facilitating growth through change

Practical applications of this advanced technology are here. It is available and it works. No longer can we afford the annual $30M we spend as a claimancy on unnecessary travel and per diem. No longer can we afford not to utilize this knowledge base at our remote activities. No longer can we afford not to educate and train our people in a technology that is fast becoming a way of life in our society. This technology has broad-based application in many Navy classrooms and should be explored to its fullest. The studio is now the classroom and the chalkboard has been replaced with cameras, computers, and slide shows. Like many processes in life, taking that first step is the hardest, yet the most rewarding. What better avenue to "move information and not people!"

Reference

1. Littleton AC. *Accounting Evolution To 1900*. Garland Publishing Inc; 1988. ❑

LCDR Bryson is an instructor in Leadership and Specialty Training at the Naval School of Health Sciences, Bethesda, MD.

Readiness Reengineering

A little over 4 years ago, then Surgeon General VADM Donald Hagen sent a team of officer, enlisted, and civilian members of Navy medicine offsite with direction to answer one question: "What size should Navy medicine be for the post-Cold War world?" The team returned with the answer: the Total Health Care Support Readiness Requirement (THCSRR) model (pronounced thick-sir). For the first time in the history of Navy and DOD medicine, a model had been developed which stated the readiness requirement for personnel—both active and reserve, officer and enlisted—to support both the day-to-day mission of the Navy and the most demanding go-to-war missions.

Since THCSRR was developed, additional models have been created to correct long-standing "systems" challenges associated with lessons learned from Operations Desert Shield and Desert Storm. In this and future issues of *Navy Medicine*, you will learn about these planning models and the Readiness Reengineering Plan (RRP).

We cannot allow our rapidly changing environment to make us lose sight of why we are here in uniform delivering care to the people who depend on us: *Readiness Is Our Enterprise.* To help address changing requirements without losing our focus, we have established the Readiness Reengineering Oversight Council (RROC), chaired by Deputy Surgeon General RADM Todd Fisher. Members of the RROC meet monthly to coordinate improvements to our readiness systems.

To affirm my commitment to the readiness mission, last August I appointed CDR Dan Snyder as my Special Assistant for Readiness Reengineering and Director of the Readiness Reengineering Task Force. This task force, along with other broad, cross-matrix organizations report to the RROC.

Navy medicine is moving swiftly to prepare itself better than ever before to meet evolving readiness missions. However, we cannot accomplish our objectives at the headquarters level alone. Our efforts here depend on your clear understanding of the reengineering plan and your personal commitment in making it work. With that in mind, I invite you to read upcoming articles on readiness reengineering. Then pass them along to your peers, seniors, and subordinates. At your next staff meeting, discuss readiness and your part in the plan. And please, forward your questions and comments to the task force at DSN 329-1724, Commercial 703-601-1724, E-mail: djsnyder@us.med.navy.mil

VADM Harold M. Koenig, MC
Surgeon General

Navy Medicine's Readiness Reengineering Journey

CDR Dan Snyder, MSC, USN

Since the end of the Cold War, considerable debate has taken place concerning the size of the Department of Defense (DOD) Active Component (AC) and Reserve Component (RC) Medical End Strength (MES) force structure. In addition, we have planned for the correction of long-standing "systems" problems which surfaced in Operations Desert Shield and Storm. My purpose here is to:

- briefly review the sizing debate,
- discuss how Navy medicine has participated in the debate,
- review the status of Navy medicine's Total Health Care Support Readiness Requirements (THCSRR) model (see *Navy Medicine*, September-October 1994), and
- introduce Navy medicine's Readiness Reengineering Plan (RRP). It is important to understand we *are* implementing THCSRR, and we are implementing it within our current force structure levels. Readiness Is Our Enterprise—Our True North.

With this in mind, let's see where we've been, where we are, and where we're headed in our readiness reengineering journey.

The Sizing Debate

Since the end of the Cold War there has been a furious and highly political debate regarding the size of the uniformed military medical structure. Many organizations, whether directed by Congress or within DOD, have looked critically at the size of the uniformed MES within DOD. The names of these studies/organizations include: the Section 733 Study and Update, the Commission on Roles and Missions (CORM) report, the Quadrennial Defense Review (QDR), the Congressional Budget Office (CBO), and the Joint Requirements Oversight Council (JROC).

These studies all reached essentially the same conclusions: (1) with the fall of the Soviet Union we could downsize DOD MES and Direct Care System (DCS) Medical Treatment Facilities (MTFs) about 50 percent and still meet the "wartime" mission, and (2) although our MTFs may deliver a unit of work load at less cost than the private sector, the lack of copayments and deductibles creates increased and inefficient demand for services. In short, these studies called for reductions in the size of the Military Health System (MHS) to shift peacetime care to the private sector and cut DOD infrastructure to help finance modernization shortfalls.

The other "critical look" in the past few years has concerned the lessons learned from the deployments in Operations Desert Shield/Storm. Clearly, Navy medicine performed spectacularly in these operations; however, a myriad of "systems" problems surfaced and were documented. Correcting these problems has been a primary goal for Navy medicine's planners.

Navy Medicine's Role in the Sizing Debate

Early in the development of the 733 study, the Surgeon General's OPNAV staff (N931) became concerned that the dialogue's focus was solely concerned with the classic "wartime" question of medical readiness: How many MES are required to care for casualties on the battlefield, and then return them to the United States?

The Navy's medical planners were actively involved in the 733 wartime study group, and supported prudent revisions to combat casualty estimates

Navy Medicine's Dual Mission

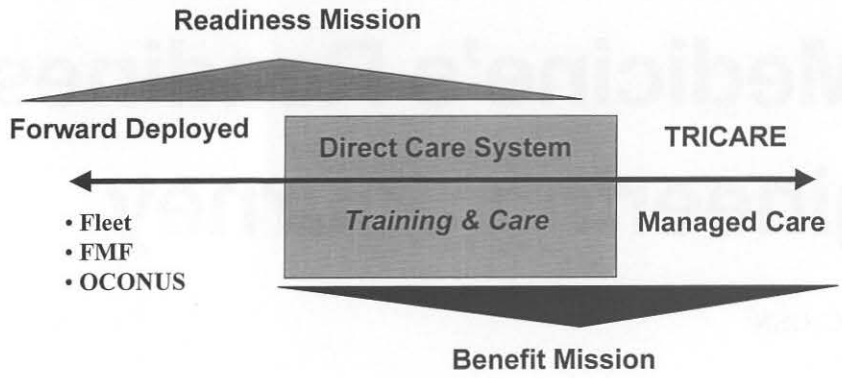


Figure 1

and disease and non-battle injury (DNBI) rates. However, it became clear that this study was not addressing the Navy's "Forward From The Sea" and Marine Corps' "Operational Maneuver From The Sea" missions. The day-to-day (DTD) forward deployment piece was missing.

Figure 1 presents the concept of the health care delivery continuum. Navy medicine provides care to about 2.2 million beneficiaries. The far left of the continuum illustrates that 30 percent of Navy medicine is supporting forward-deployed operational and overseas units. In the hospitals and clinics of our continental United States (CONUS) direct care mission (DCM), training is provided to personnel preparing for operational missions in war and peace. Finally, the care we cannot provide under our readiness umbrella is provided through the TRICARE program. The Navy's primary concern was with the issue of sizing for both readiness missions: (1) wartime and (2) DTD—the DOD-wide wartime answer was too broad to satisfy Navy medical planners.

As a result of these concerns, the Surgeon General established a team to examine the precise requirements needed to support Navy Medicine's DTD forward-deployed forces in peacetime, and the classic wartime mission in support of the Navy and Marine Corps. This team embraced a simple vision to enable the process to develop using principles founded in readiness.

Navy Medicine

- Prepared to support all Navy and Marine Corps operational missions, and
- A state-of-the-art health care system built upon our readiness-training core, to maintain the health and fitness of those entrusted to our care.

As a result of the team's efforts, Navy medicine developed a model to provide a comprehensive and precise statement of the fully trained AC and RC MES requirements by corps and specialty for Navy medicine's two readiness missions: (1) wartime and (2) the DTD operational mission.

Additionally, the team was able to determine the specific number of billets required to support the training of personnel. This model, the Total Health Care Support Readiness Requirement (THCSRR), is displayed in Figure 2.

Status of the THCSRR Model

The THCSRR components, methodology and strategy, have been adopted by JCS, ASD(HA), OSD (for the 733 Update) and the other services, and remain essentially unchanged from its inception. The model has been validated and re-validated in multiple studies. It is a given with Pentagon line and medical planners that the THCSRR model provides the total AC and RC MES readiness requirements for Navy medicine.

THCSRR continues to provide an accurate assessment (by corps and specialty) for the entire spectrum of readiness missions from the battlefield to the care of returning casualties in CONUS. Currently, about 85 percent of our Navy AC MES, and 100 percent of our RC MES, are required to support the Navy and Marine Corps' readiness missions. Similarly, when applying the THCSRR methodology to the other services, we find that the "50 percent" answer to the downsizing issue is not appropriate. Reviews by GAO and DOD(IG) personnel have validated the underlying methodology and accuracy presented by the THCSRR model.

Total Healthcare Support Readiness Requirement (THCSRR) Model Defined

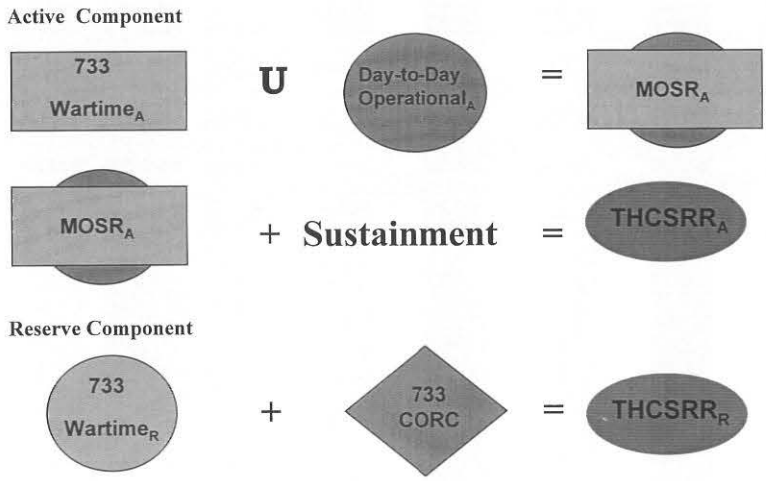


Figure 2

Navy Medicine's Readiness Reengineering Plan

Now that we understand in exact numbers what AC and RC MES are required for the post-Cold War forward-deployed and wartime missions of the Navy/Marine Corps team, we must now turn our focus toward ensuring we have a fully trained, ready to deploy Medical Department. There are obvious differences in the current manning documents for Navy medicine, which are often based on the "health benefit" mission, versus the post-Cold War readiness requirements as stated in THCSRR. How then, does Navy medicine realign itself to readiness? Further, assuming that the platform requirements of our operational and overseas units are somewhat static, then how do we restructure the CONUS MES and MHS to focus on readiness?

The Joint Chiefs of Staff (JCS) doctrinal definition of readiness is "the ability of forces, units, weapons systems, or equipment to deliver the outputs for which designed." Additionally, JCS doctrine states that readiness requires: (1) the right people, (2) with the right training (unit and individual), (3) with the right equipment, (4) in the right place at the right time. Given this doctrine, what should we do to reengineer the CONUS structure for Navy medicine? Let's look at our reengineering plans by readiness component.

The Right People. The first step in our reengineering effort is to put the THCSRR MES at the core of everything we do. To accomplish this, we must address the difference between the THCSRR requirements and the current inventory. Comprehensive definitions of required skills for various readiness mission areas will help to resolve any differences between the force structure required in the next century and today's force structure. Additionally, Navy medicine is realigning to meet the requirements of the doctrine that has generated "Forward From The Sea" and "Operational Maneuver From The Sea." The medical structures of the fleet, FMF, hospital ships (TAHs), and fleet hospitals (FHs) are being streamlined to reflect the mobility and flexibility requirements of the Navy/Marine Corps team. As Navy medicine uses THCSRR to quantify what AC and RC MES are required for the readiness mission, and initiates actions required for readiness realignment, certain "growing pains" may result. The surgically intense readiness missions may at times conflict with the primary care focus of the TRICARE health benefit mission. However, it is the prevention of casualties, and the timely delivery of care in the wartime and DTD forward deployed readiness missions, that must keep us focused on ensuring the best possible care for our Sailors and Marines who go in harm's way. We must, and will, implement THCSRR; however, this doesn't mean we are going to cut our force structure to THCSRR levels.

Because Navy medicine and local MTF commanders must "round out"

Readiness Re-alignment Plan: *Unit Training*

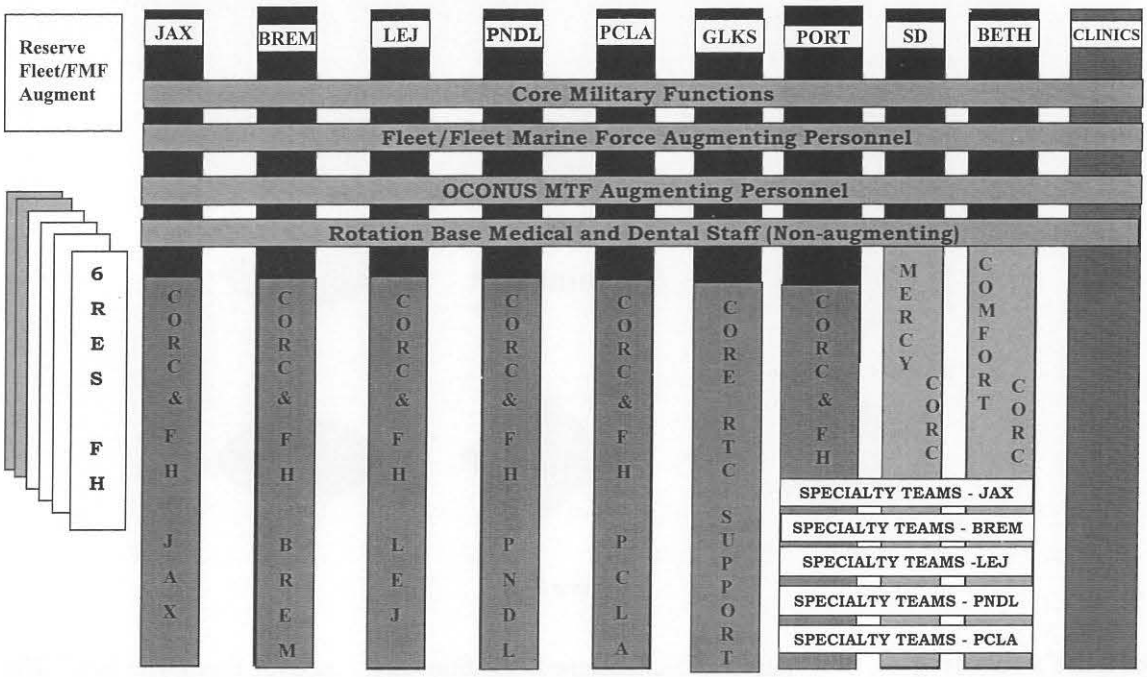


Figure 3

the benefit mission using the THCSRR MES as a basic building block, it is our responsibility to support the benefit mission using our civil service capabilities, the TRICARE managed care support contracts, and any additional MES that may not be specifically required by the readiness mission. There is only one way to ensure the right people are receiving the right training, and are ready to report to the right place with the right equipment: by placing the THCSRR readiness MES at the core of every mission area, and coding MTF billets to reflect the readiness mission first, and by readiness platform. Other non-THCSRR billets will be used to provide cost-effective delivery of the benefit and care to active duty mission.

The Right Training. As force structure issues are being resolved, and firm implementation plans established, Navy medicine is moving to realign its billet structure to put THCSRR at the core of every MTF and DTF. Often referred to as the "Galactic Radiator," Navy medicine's Readiness Alignment Plan (Figure 3) shows the basic readiness unit training realignment plan for Navy medicine (see CDR Walt Tinling's article, page 13). The crews of the AC FHs are centered on Naval Medical Center, Portsmouth, Naval Hospitals Jacksonville, Pensacola, Camp Lejeune, Camp Pendleton, and Bremerton.

The AC crews of the two hospital ships are centered on Naval Medical Centers Bethesda and San Diego. The AC MES that augment the fleet, FMF, and OCONUS facilities in wartime, and the DTD rotation base personnel, are then distributed across all MTFs. The subspecialty teams from the FHs (e.g., neurosurgery) are located at naval medical centers. The RC "matched set" FHs and Care of Returning Casualties (CORC) MES are centered at Navy hospitals providing maximum flexibility for total force AC and RC training and deployments. Expect to hear much more about Navy medicine's Total Force Initiative (TFI) in future editions of *Navy Medicine.*

The Right Equipment. One of the greatest debates in the Pentagon has revolved around the number of MTFs required to meet the readiness mission. Navy medicine once again led the way with development of the CONUS Healthcare Readiness Infrastructure Sizing Model, known as the CHRISM model (Figure 4). This model looks at the individual readiness requirements for CONUS MTFs: (1) care of wartime

CONUS Healthcare Readiness Infrastructure Sizing Model (CHRISM)

CONUS WARTIME BEDS	UNIT READINESS TRAINING		ROTATION BASE	THCSRR MEDICAL SKILLS TRAINING	UNION
	Facility	Platform			
San Diego	San Diego	TAH, 3 CRTS, FMF OCONUS	San Diego	San Diego	San Diego
Portsmouth	Portsmouth	FH, 3 CRTS, FMF OCONUS	Portsmouth	Portsmouth	Portsmouth
Bethesda	Bethesda	TAH, 2 CRTS, FMF OCONUS	Bethesda	Bethesda	Bethesda
C. Lejeune	C. Lejeune (Cherry Point)	FH, FMF	C. Lejeune		C. Lejeune (Cherry Point)
C. Pendleton	C. Pendleton (Lemoore)	FH, FMF	C. Pendleton	C. Pendleton	C. Pendleton (Lemoore)
Jacksonville	Jacksonville	FH, CRTS	Jacksonville	Jacksonville	Jacksonville
Bremerton	Bremerton (Oak Harbor)	FH	Bremerton	Bremerton	Bremerton (Oak Harbor)
Pensacola	Pensacola	FH	Pensacola	Pensacola	Pensacola
Great Lakes	Great Lakes	2 CRTS, OCONUS			Great Lakes

Note: NH Twentynine Palms considered Isolated CONUS MTF

Figure 4

casualties, (2) unit readiness training, (3) rotation base for overseas and deployed personnel, and (4) THCSRR medical skills training, and then creates a union of the four requirements to determine the minimum need for inpatient MTFs.

At the Right Time and Place. Navy medicine, as an integral part of the Navy and Marine Corps teams, is forward deployed throughout the world. Readiness is our "enterprise," our "main thing," and our "true north." As was proven in Desert Shield/Storm, Navy medicine's deployments in support of the fleet and FMF, the hospital ships, and our FHs, provided the first and most complete medical capability in theater.

Summary

With the "Readiness Is Our Enterprise—Our True North" focus in mind, Navy medicine is pressing ahead with dynamic readiness reengineering and realignment efforts. This past fall, we stood-up Navy medicine's Readiness Reengineering Oversight Council (RROC), the Readiness Reengineering Task Force (RRTF) and its Tiger Teams (finance, operations, education and training, evaluation, marketing, fit force, project support), the Deployable Medical Platforms Advisory Council (DMPAC), and the Naval Health Services Doctrine Board (NHSDB). Look forward to a report on the progress of these teams as they work to achieve our readiness vision.

Navy Medicine

- Prepared to support all Navy and Marine Corps operational missions, and
- A state-of-the-art health care system built upon our readiness-training core,

to maintain the health and fitness of those entrusted to our care. ❑

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MED-27: Tracking the "Right People"

CAPT John Fahey, MC, USN
CDR Andrew Kirshner, MSC, USN
CDR Denny McClain, NC, USN
LCDR Ron McLean, MSC, USN
LCDR Glenda Carter, MSC, USN

MED-27 (Readiness) is the Division within the Bureau of Medicine and Surgery responsible for taking people assigned to hospitals and clinics and matching them to a mobilization platform to meet the wartime mobilization requirements generated by the National Military Strategy and CINC OpPlans. This process is called the Medical Augmentation Program (MAP). MED-27 then reports to the Surgeon General how many mobilization requirements are being filled with trained and qualified personnel. A little more than a year ago, MED-27 was only able to identify 35 percent of the platform augmentation billets that had an assigned member from a Navy hospital or dental center. Today that figure is at 85 percent and closing in on 90 percent. The story of how that happened is a success story that illustrates how the Readiness Reengineering process is working and how it will make everyone's job of readiness easier in the future.

The medical augmentation system has two pieces: a treatment facility with medical personnel, and a wartime requirement for those personnel to work somewhere else on an augmentation platform. As CDR Snyder explains in his article "Navy Medicine's Readiness Reengineering Journey," following Desert Storm, Navy medicine was faced with several challenges. These included the BRAC process to downsize the military (which impacted the first piece of the puzzle—the treatment facilities), and the Quadrennial Defense Review to determine future military requirements (which impacted the second piece—the mobilization platforms). Additionally, all three military medical services are trying to anticipate future medical requirements through the Joint Chiefs of Staff Joint Vision 2010 process and the Department of Defense (Health Affairs) MHS 2010 process. The OPNAV-931 staff also clarified the OCONUS treatment facility augmentation requirements. The end of the cold war eliminated the need to expand MTFs in the European theater, and war in the Caribbean has been deemed unlikely. To this end, M+1 augmentation requirements were officially discontinued for all DTFs and all MTFs, with the exception of Naval Hospitals Okinawa, Yokosuka, and Guam.

The closing of Naval Hospital Oakland and the decommissioning of Fleet Hospitals 1, 2, and 8 in 1996 surfaced an urgent need to reassign personnel within Navy medicine. A decision was made to implement the "Galactic Radiator" concept even though it was still under development, and sole source the major platforms to major clinical facilities. Thus the requirement for USNS *Mercy* was moved from Oakland to San Diego and USNS *Comfort* to Portsmouth; the requirement for Fleet Hospital 5 was moved to Camp Pendleton and FH6 to Bremerton.

Problems began emerging when MED-27 tried to make these changes in the system. All of the mobilization platforms had undergone conceptual upgrades since Desert Storm (e.g., the new Marine Medical Battalion concept) but those new requirements hadn't found their way into the system yet. Platform managers such as Headquarters Marine Corps and Military Sealift Command were each clamoring to have their platform requirements filled first with the latest versions of those platforms. In the field, the treatment facility commanding officers wanted to know where their people were assigned so they could meet their own "True North" mission. And all the while the clock was ticking on the move of USNS *Mercy* from the Bay Area to San Diego.

To complicate matters the computer tracking system BUMED relies on to track readiness assignments, the Medical Personnel Augmentation System (MPAS) module of the Standard Personnel Management System (SPMS), was broken. MPAS and SPMS were designed in the late 80's to track pre-Desert Storm requirements

and MPAS was unable to keep up with all the proposed changes happening throughout the system. Thus in the summer of 1996 there was no way to report accurately the true status of the readiness of the Medical Department.

MED-27 was receiving complaints from hospitals and dental centers regarding the constant changes in operational requirements being levied on them via the SPMS computer. Personnel were being assigned 1 month and unassigned the next as the requirements changed. A working group with representatives from BUMED, HQMC, BUPERS, NMMIC, and the OPNAV staff spent months tracking down and validating billet requirements and how those requirements got into the system.

SPMS was updated to reflect more accurately training and administrative requirements. The entire process was coordinated with the THCSSR concept to ensure assignments would reflect the latest model evolving from the OPNAV staff. What followed was a tedious yet rewarding period for MED-27. Successive electronic reporting to and from the field allowed MED-27 to analyze current staffing levels and apply platform requirements to both the single source platforms (FHs and TAHs) as well as the other platforms that were intended for continued multiple sourcing.

Through much hard work and the coordinated efforts of MED-27, the HSOs and MTFs/DTFs, we were able to single source the Casualty Receiving and Treatment Ships and most of the FMF. This created a sense of ownership and increased efficiencies. As of January 1998, BUMED was able to fill *84 percent* of its platform requirements. The first critical piece of the readiness equation—verifying the right people are on the right platform, is well on its way to implementation. ❑

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The TETT Team

CAPT Gerry Baker, MSC, USN
CAPT Jan Moran, NC, USN
CAPT Ron Sollock, MC, USN
CDR Walt Tinling, MSC, USN

In its pursuit of readiness as "True North," Navy medicine employs the Joint Chiefs of Staff definition of readiness as the guiding principle: "the ability of forces, units or systems to deliver the outputs for which they were designed." Unit readiness refers to the right people, *with the right training*, with the right equipment, at the right place and time. Hopefully these definitions are not new to you. They are the core of all efforts by the Total Health Care Support Readiness Requirement (THCSRR) task forces.

For the past 5 years, we have attempted to educate Navy medicine personnel in forums from the Surgeon General's Leadership Conferences to the Lewis E. Angelo Professional Symposium (LEAPS). Many of our commanding officers, notably CAPT Don Arthur at Camp Lejuene, NC, and RADM Bonnie Potter at the National Naval Medical Center, Bethesda, MD, have taken these principles to the deckplates and are employing them to great effect at their commands. These broad goals have been endorsed by the DOD Commission on Roles and Missions, the DOD Quadrennial Defense Review (QDR), and the Office of the Secretary of Defense 733 Study. They have also been included by Navy medicine in the past three Programming and Planning cycles.

The Training and Education Tiger Team (TETT) as chartered by the Readiness Reengineering Oversight Council (RROC) is pursuing four broad goals for Navy medicine: deliver (1) the right training, (2) to the right people, (3) at the right time in their career, (4) at the right price.

The Right Training. Resources are at a premium, and we simply cannot afford to provide the "wrong" training

to anyone. If we are to corporately achieve our readiness vision, we must ensure we provide the required training and not simply the desired training. For the first time THCSRR provides Navy medicine with the ability to quantify the training requirement for the entire Medical Department. The model allows planners and commanding officers the opportunity to catalogue accurately the entirety of the training requirement and measure its attainment. To that end, TETT is pursuing the acquisition of a data base to serve as the training requirements catalogue. Once procured and in use, the data base, coupled with the individual training record, will serve as the measure of individual and unit training readiness.

To the Right People. In today's environment it is not enough to provide the "right training." It must be provided to the right people. We are making history in Navy medicine. For the first time, THCSRR, along with the implementation of component UICs and BUPERS individual assignment orders to specific Deployable Medical Systems (DEPMED) platforms, gives commanding officers the ability to ensure training opportunities are provided to the right people.

Opportunities to attend fire fighting, damage control, or fleet hospital operations training are limited. We must ensure that individuals who require a particular type of training actually receive it. Unfortunately, training opportunities and resources aren't available to provide training not required for the mobilization assignment. It is everyone's responsibility to ensure that we invest our limited resources to meet our requirements.

At the Right Time. Once it has been determined what constitutes the right training and who requires it (the right people), we must ensure the training opportunity is provided at the "right time." To ignore the timing is almost as detrimental to the mission as providing the wrong training, or the right training to the wrong people.

Career-appropriate training is key to ensuring Navy medicine meets its readiness goals. Again, it is THCSRR that provides Navy medicine with the ability to determine the phased nature of the training requirement and allows planners and commanding officers the ability to forecast accurately the specific individual training requirements. This will ensure they are delivered at career-appropriate points and will contribute to meeting the overarching readiness goals of Navy medicine.

At the Right Price. The Readiness Focused Capitation (RFC) model (created by LT Lorraine Nudd) develops the financial requirement, captures the cost of readiness, and finances it first. Accurate determination, acknowledgement, and funding of the requirement are the first steps to ensure training is provided at the right price.

Within the totality of the training requirement there are some types of training that we must do, some that we must acquire from the line Navy and some that must be purchased from other services. The training we must provide presents opportunities to streamline and employ emerging technologies, such as distance learning, to reduce costs and improve efficiencies.

The *Right Training*, to the *Right People*, at the *Right Time*, at the *Right Price* are ambitious goals for Navy medicine to achieve. As the Readiness Reengineering Plan (RRP) is implemented across the claimancy, readiness will be the enterprise. Capturing the totality of the training requirement and matching it to the individuals training, education, and experience will be the central effort of TETT. It is the answer to the "Right Training" question for Navy medicine. ❑

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Life as a Hospital Corpsman at Naval Hospital Cañacao, Philippine Islands, 1940-41

Courtesy Ernest J. Irvin

Medical Field Service School, Marine Corps Base, San Diego, CA, 1939: Ernest J. Irvin is second row from top, second from right.

As recalled by former pharmacist's mate Ernest J. Irvin

We worked "tropical hours," from 0700 to 1300 one day and from 0700 to 2100 the next day, head and toe or port and starboard, as we called it. This was pre-World War II before ward duty corpsmen were controlled by the nursing service or unions. The chief master-at-arms of the hospital assigned us and set our hours under the personnel office supervision.

I worked on D Ward (80 beds of 20 beds in 4 rows: first row, EENT; second row, Clean Surgery; third row, Dirty Surgery; and fourth row, Orthopedics). We corpsmen performed *all* nursing functions including giving medications/treatments and checking vital signs and recording same. We also made beds, cleaned windows, floors, heads, offices/dressing rooms/clinics. Sometimes ambulatory patients helped with cleaning chores.—JKH

BUMED Archives

Naval Hospital Cañacao

Navy Enlisted Pay Scale 1940-41

E-1 Apprentice Seaman	21.00/month
E-2 Seaman 2c	36.00/month
E-3 Seaman 1c	54.00/month
E-4 Petty Officer 3c	60.00/month
E-5 Petty Officer 2c	72.00/month
E-6 Petty Officer 1c	84.00/month
E-7 CPO (Acting Appointment)	99.00/month
E-7 CPO (Permanent)	126.00/month

Service Stripes called hash marks: Earned one every 4 years

1st—10 percent of base pay added
2nd—5 percent of base pay added
Subsequent at 5 percent; total not to exceed 25 percent total increase in pay for longevity.

Teaching Preventive Medicine for Deployed Units: The Operational Preventive Medicine Course

LCDR David M. Claborn, MSC, USN
CAPT Elizabeth Ledbetter, MC, USN

Photos by LTJG Stephan E. Lee, MSC

SGT Daniels of the 7th Engineers demonstrates the capabilities of the Reverse Osmosis Water Purification Unit.

Admiral Lord Horatio Nelson once said, "The great thing in all military service is health; and you will agree with me that it is easiest for an officer to keep men healthy, than for a physician to cure them." Considering that Lord Nelson had gout and malaria, and that he had lost all of his upper teeth, as well as one eye and one arm, it can be assumed that he knew what he was talking about! As it was for Nelson, experience can be a great teacher for all medical personnel. This philosophy is the inspiration for a course in preventive medicine taught by the Navy Environmental and Preventive Medicine Unit No. 5 (NEPMU-5) in San Diego, CA. The Operational

SSGT Hunt of 1st Medical Battalion provides field training on MOPP gear to members of the 1997 OPMC.

Preventive Medicine Course (OPMC) seeks to share the wealth of knowledge about public health from military and academic experts with experience in the field environment.

Originally designed to prevent the loss of knowledge gained during the Gulf War, the course had expanded to include lessons learned from operations like Indigo Desert, Provide Comfort, and other wartime or humanitarian efforts. NEPMU-5 is ideally situated near experts from the San Diego State School of Public Health, the San Diego Naval Medical Center, the Field Medical Service School, Marine Corps assets at Camp Pendleton, and even practitioners from nearby Mexico. This variety of expertise allows the course to address issues such as control of communicable disease, field hygiene, prevention of cold and heat injuries, pre-deployment planning, outbreak investigations, and medical intelligence.

Historically, one of the most popular lectures has been given by Dr. Abram Benenson, editor of *The Control of Communicable Disease Handbook* and professor emeritus at San Diego State University. Dr. Benenson's lecture reviews his own experience in disease investigations and the development of vaccines such as the one currently used for control of typhoid. His lecture sets the tone for all of the following presentations and gives a historical and personal perspective which is truly unique. Other outstanding speakers have included CAPT Skip Berkle, USNR-R, from the University of Hawaii on humanitarian relief efforts, and CAPT David Conwill, USNR-R, from the University of Mississippi School of Medicine on several epidemiology topics as well as tuberculosis.

The Unit has been extremely fortunate in attracting top-quality subject

Students present an original solution to a scenario which requires the utilization of knowledge acquired at the Operational Preventive Medicine Course.

matter experts. A popular segment is the Contingency Forum, a seminar in which preventive medicine personnel present actual experiences from a variety of operational settings. Previous presentations have included lessons learned from Panama, Bosnia, Australia, Somalia, and Saudi Arabia. CAPT George Hansel, retired environmental health officer and former officer-in-charge of NEPMU-5, also gives his personal experience and perspective on preventive medicine during the Vietnam War.

A 3-day field phase taught at Camp Pendleton Marine Corps Base has recently been reinstituted in OPMC. The students live in the field setting while learning about field hygiene devices, sanitation for messing facilities, and the control of disease vectors like mosquitoes and ticks. They also complete an exercise on the proper selection of bivouac sites and receive standard Marine Corps training on the use of chemical, biological, and radiological protective gear.

The field phase emphasizes practical techniques which maintain the health of personnel living in the austere conditions one might expect during a war or disaster relief operation. Of course, one of the other benefits of being in southern California is that the field phase of OPMC, which is usually taught in July, invariably enjoys beautiful weather.

To apply what they have learned during the 2 weeks of instruction, students brief a senior officer on their preparations for a scenario provided to them earlier in the course. These scenarios, which deal with simulated wartime or disaster relief situations, are intended to make the students plan for deployments while utilizing the information provided during the course. The scenario presentations are brief, but a questioning period afterwards requires the students to be thoroughly familiar with their deployable assets, potential health risks, and various other subjects such as drug or insecticide resistance in the described area.

Previous classes have been composed of both reserve and active duty medical personnel, with the reservists comprising about 30 percent of the class. The most recent class in 1997 had a large number of Army members in attendance; the Air Force has also been represented at times. The course is designed to be beneficial for any medical person who may have some responsibility on deployment for preventive medicine or the supervision of preventive medicine specialists. As such, the classes are generally composed of senior personnel, though E-5 and E-6 corpsmen may be accepted on an individualized basis. Typical students include physicians, environmental health officers, entomologists, and preventive medicine technicians, but the course has also been popular with independent duty corpsmen, physician's assistants, and nurses. Other specialists who could benefit from this course might be dentists, veterinarians, or anyone responsible for plans, operations, and medical intelligence (POMI).

Preparation for and presentation of OPMC is truly a team effort, involving the entire NEPMU-5 staff. From design and computerization of the official OPMC logo, through planning the curriculum and field phase, publicizing the course and recruiting lecturers and students, assembling the student manuals, attending to the myriad of administrative details, to the final delivery of the "product"—all are done as collateral duty!

Over the 6-year history of OPMC, the course faculty has endeavored to provide a practical and historical perspective on public health and preventive medicine in the operational setting. The objective of the course is to "identify mission critical public health concerns in the operational setting, with an emphasis on planning and practical management of preventive medicine operations from pre- through post-deployment." A survey of a general audience has been prepared by the Naval Environmental Health Center and NEPMU-5, and a copy is available on our Website if you would like to take the survey. The Unit Worldwide Web address is http://trout.nosc.mil/~nepmu5/. General information about the Operational Preventive Medicine Course can be obtained by calling the course coordinator, Ms. Kate Chandler, at 1-619-556-8560, DSN 526-8560, or the course director, CAPT Elizabeth Ledbetter, at 1-619-556-9254, DSN 526-9254. ❑

LCDR Claborn is an entomologist with the Navy Environmental and Preventive Medicine Unit No. 5, San Diego, CA. CAPT Ledbetter is an epidemiologist at the same facility and has been course director for OPMC for the last 5 years.

U.S. Navy Dental Technicians: Fifty Years of Service

HMCS(FMF) Mark T. Hacala, USNR

Navy dental technicians began a tradition of exceptional service long before their designation as a separate rating in 1948. In the years since, the dental technician community grew into a trained, professional organization ready to perform under arduous conditions.

Early Years: Enlisted Dentists

Enlisted personnel with training in dentistry provided care prior to the establishment of the Dental Corps. Navy medicine was forced to continue this trend, as the Surgeon General noted in 1909: "There is not authority of law for employment of dentists in the Navy, and details of certain members of the Hospital Corps for such work is in the nature of a makeshift until Congress authorizes the organization of a dental corps."(*1*)

Following the establishment of the Naval Dental School in Washington, DC, in 1923, a 4-month course for dental assistants graduated the first 11 Navy-trained dental technicians.(*2*) The dental assistant course created a pool of hospital corpsmen prepared to run dental offices. Unfortunately, Sailors were ordered to the school by an imperfect method. "This consisted of selecting men on duty in the vicinity of Washington so that little mileage would be involved, and whether they were desirous of obtaining this training or not."(*3*)

Morale was low among these reluctant assistants. Still carried on the rosters as hospital corpsmen, they were often taken by the Medical Department. And, despite their dental specialty, they were expected to pass the regular pharmacist's mate rating exams, which contained nothing pertaining to their trade.

Some of the dental assistant selection and assignment problems were alleviated in the 1920's. Policies dictated that hospital corpsmen would get the course by request only, and would be assigned only to dental offices. Further, job-specific advancement examinations gave them equal access to advancement.

By 1930, the dental assistant school had branched into two sections, the operative assistant and the prosthetic technician. Twenty in each class were assigned to the operative course and 10 to the prosthetic course. Each class could train only 20 to 40 pharmacist's mates, far fewer than needed to fill the available billets. As a result, many successful dental technicians were trained on the job.(*4*)

Dental technicians staff an oral surgery tent at the division dental clinic, 2nd Medical Battalion, 2nd Marine Division on Saipan, 1944.

Photos from BUMED Archives

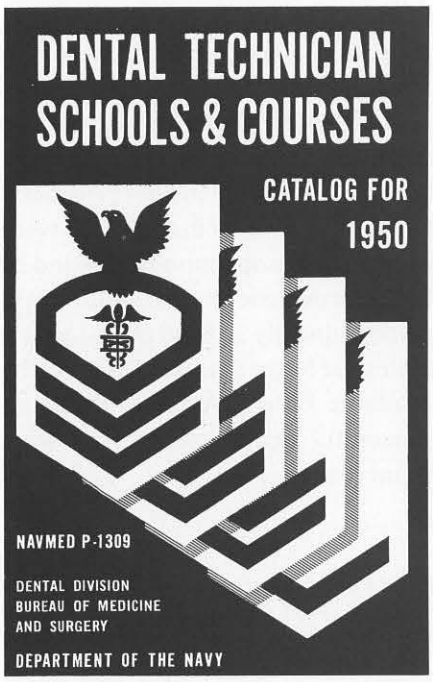
Dental tech assists in the prosthetics room at the Naval Training Center, Sampson, NY, 1945.

World War II: Expanded Roles

The number of dental specialists within the Hospital Corps swelled during World War II. When the Japanese attacked Pearl Harbor, some 1,000 dental technicians were serving as part of the Hospital Corps. At war's end, there were 10,339 dental technicians, including 1,200 women and "16 negroes," on active duty.(*5*)

Dental technicians took on numerous challenges outside their primary purview. On ships, in clinics, and with the Marines, dental technicians joined other hospital corpsmen in caring for the wounded and sick. Beginning in 1945, prosthetic technicians played a key role in developing functional prosthetics for hands and fingers and creating acrylic artificial eyes.(*6*)

During the war, dental technicians had assisted with or provided 34,438,773 dental treatments, among them 4 million tooth extractions. Prosthetic technicians made over half a million dentures and 27,000 bridges. (*7*)



A Rating of Their Own

There were unsuccessful attempts to create a separate rating for dental technicians in 1929 and 1941. The Bureau of Naval Personnel established the Pharmacist's Mate, Dental Prosthetic Technician (PhM-DP) designation in March 1944.(*8*)

Dental technicians earned a unique distinction under a provision of the 1947 Army-Navy Medical Service Corps Act, which allowed the Secretary of the Navy to create specific dental rates. BUPERS Circular Letter 246-47 established rating Group XI, a component of unique dental rates to equal 11 percent of the Hospital Corps. The new structure was effected on 2 April 1948. The dental technician rating had finally become a reality.(*9*)

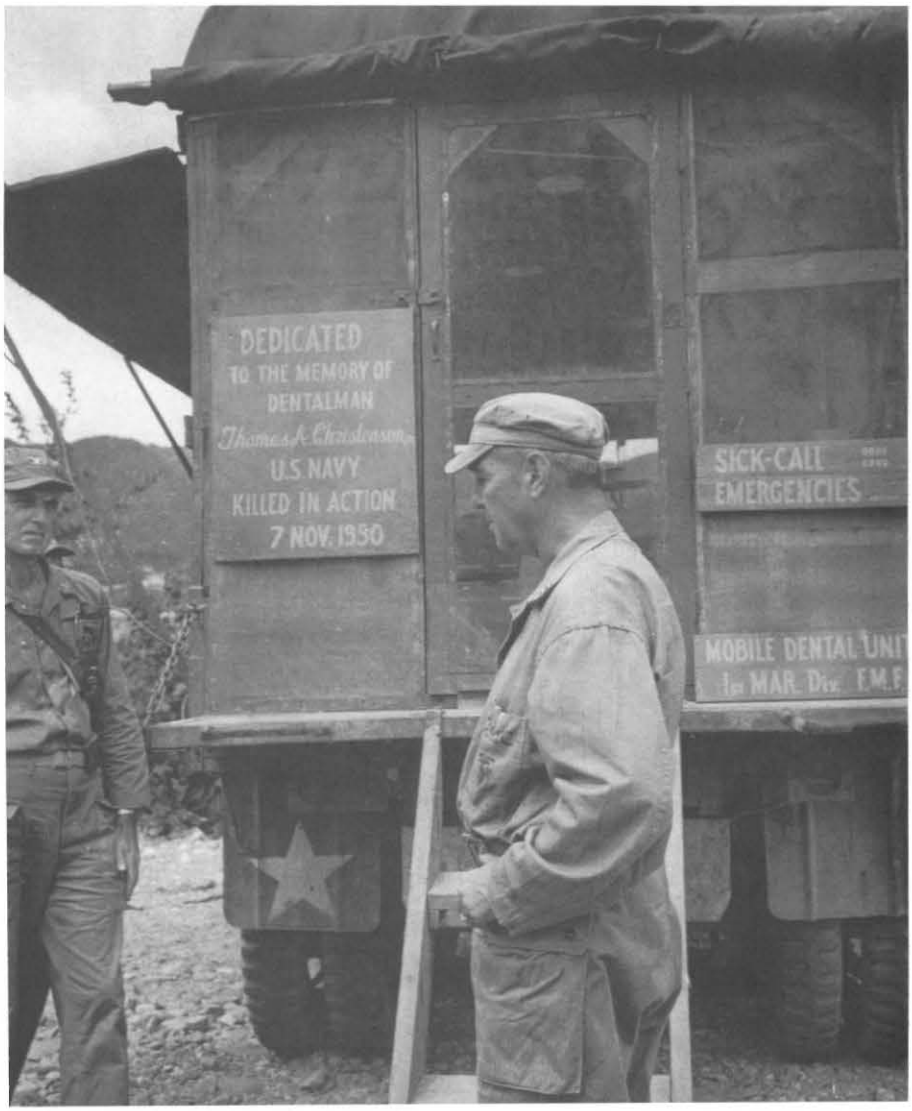
New titles for the rating were dental recruit, dental apprentice, dentalman, dental technicians third, second, and first class, and chief dental technician. Senior chief and master chief dental technicians were added in 1959. New legislation permitted Naval Reserve women (WAVES) to enlist in the regular Navy as of 12 June 1948.

Korea: First Test

Dental technicians would soon be tested as the United States committed military forces to the struggle in Korea. Those who served with Fleet Marine Force units often performed their dental duties by day and medical duties by night. Dental technicians served admirably as assistants in operating rooms, hospital wards, and with casualty clearing companies.

A mobile dental unit was created in Korea to provide service to Marines in the field. One dentist and a dental technician made rounds to frontline companies on a 6x6 truck outfitted with a dental chair and motor-powered handpiece. Initial success prompted the addition of two other trucks, one for operative and one for prosthetic dentistry. The three vehicles were able to provide any kind of dental care to Marines at the front.(*10*)

Occasionally, dental technicians found themselves facing the enemy. In the rating's greatest example of service



Left: **Mobile dental unit, Korea: 6x6 trucks were outfitted with equipment for general dentistry, prosthetics, and oral surgery. The three vehicles, each of which carried a dental technician and a dentist, brought dental care to frontline Marines. This clinic was named for Navy Cross recipient DN Thomas A. Christensen.** ***Below:*** **A dental technician assembles a removable partial denture aboard the aircraft carrier USS *Kitty Hawk* (CV-63), 1987.**

in Korea, DN Thomas A. Christensen received the Navy Cross for exposing himself to enemy fire to rescue and treat wounded Marines. Christensen sustained several severe wounds during the struggle, the last of which was mortal. In like fashion, DT3 Mark Hayes, Jr. received the Silver Star Medal for braving enemy fire to reach wounded Marines and Soldiers during a firefight in 1952. Dental technicians earned nine other combat decorations in Korea, including a Bronze Star Medal and eight Secretary of the Navy Commendations with ribbon and Combat "V" (now the Navy & Marine Corps Commendation Medal).(*11*)

Vietnam: Teamwork in War

Navy dental technicians played a vital role in the care of U.S. and indigenous personnel in Vietnam for nearly two decades. One dental technician was assigned to the American Embassy Dispensary in Saigon as early as 1956. Many more would follow. The hospital ship USS *Repose* (AH-16) reached Vietnam in mid-February 1966 with eight dental technicians. The USS *Sanctuary* (AH-17) arrived the following month with a similar complement.(*12*)

In all, some 800 dental technicians served with the Marines in Vietnam. Beyond their support of military personnel, dental technicians went into small hamlets to assist Vietnamese civilians under the Medical Civic Actions Program (MEDCAP). Their skill and devotion as a team were recognized by six Presidential Unit Citations, six Navy Unit Commendations, and five Meritorious Unit Commendations. Navy dental units also received four Vietnamese unit awards.(*13*)

Sadly, two dental technicians lost their lives in America's longest war. Twenty-three-year-old DT3 John W. Drinkhouse, who had been in Vietnam for 11 months, was killed during shelling in November 1967. DT3 Charles R. Bartholomew, USNR, died in March 1968 at the age of 21.(*14*)

Lebanon: Aid and Comfort

Naval dental personnel were involved in significant military incursions in the post-Vietnam era. Between 1982 and 1984, Marines and attached personnel performed a "peacekeeping" mission in Beirut, Lebanon. Tension

Dental Technicians on Duty	
1923	11
1928	76
1929	136
1941	1,000
1945	10,339
1953	4,700
1956	3,040
1960	2,794
1969	4,045
1970	3,921
1979	3,334
1980	3,410
1987	3,768
1995	3,333
1996	3,289
1997	3,140
1998	3,277

and ground combat escalated over a period of months until a suicide bomber attacked the headquarters of Battalion Landing Team 1/8 Marines on 23 Oct 1983. The blast killed 241 Marines, Sailors, and Soldiers and wounded countless others. The battalion aid station was destroyed, and dental technicians joined medical personnel to rescue and treat the wounded. DN Manuel Bernal, DT3 Richard Fly, DT2 Frank McDurman, and DT2 Paul Dziadon took on medical duties, triaging and aiding the wounded survivors and sorting the dead.(*15*)

Persian Gulf War: Mobilization

Iraq's 1990 invasion of Kuwait prompted an international response led by the largest deployment of U.S. military personnel in decades. Sailors and Marines required dental screening and treatment to be deployable, and Navy dental technicians met the need by staffing clinics and processing centers. Technicians at dental facilities across the country worked 20-hour days to screen and treat patients. Dental technicians deployed with hospital ships, fleet hospitals, Marine Corps units, and other forces sent to the theater of conflict.

Naval Reserve dental technicians made a substantial contribution. Two hundred fifty-one reservists were recalled, 120 of whom were assigned to Marine Corps units. Further contributions were made at dental treatment facilities, where 101 dental technicians augmented their regular Navy counterparts.(*16*)

1998

At its Golden Anniversary, the dental technician rating had 3,277 active and 679 Selected Reserve personnel. With three of its schools (DT "A," Basic, and Advanced Prosthetic Technician) at Sheppard Air Force Base, TX, the rating leads the Navy in joint-service training with the Army and Air Force. Dental technicians have been chosen for service as command master chief petty officers of major commands, including ships. Numerous DTs have been selected for high honors such as Sailor of the Quarter. In 1997, DTC Hazelann K. Teamer, of the National Naval Dental Center, Bethesda, MD, earned a great honor for her rating with her selection as the Navy's Sailor of the Year.

Today, dental technicians serve in nine Naval Enlisted Classification (NEC) specialties. Among these are dental lab technicians, surgical technicians, Fleet Marine Force technicians, equipment repair personnel, administrative technicians, and dental hygienists. They are assigned to in CONUS facilities, aboard ships, with the Marines, and with the Seabees. Their first 50 years of proud service to the Navy and Marine Corps points to a future of great promise.

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Vietnam Casualty Search Page. Internet: www.noquarter.org. ❑

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Innocence of Warriors

Thomas Dimitry, Ph.D.

It was late morning in mid-October 1969, and I was attached to a platoon of M Company, 3rd Battalion, 7th Marines, 1st Marine Division. There were 28 Marines and myself, the "doc." One of the Marines spotted four individuals about 200 meters from us. A fire team was dispatched and I asked to go along with them.

We were in a free-fire zone in the Que Son mountains and we could have reconned by fire. As we got closer to the people I made out four Vietnamese living next to a huge boulder with a thatched roof. There was a cooking fire and a mama-san, papa-san, baby-san (about 4 or 5), and a boy-san about 12 to 14. The adults looked old beyond their years and what teeth they had left were stained with beetle juice/nut. The baby-san was small, smelly, dirty, and looked jaundiced. Using my steel pot as a basin, I poured water from my canteens and used gauze and Phisohex in an attempt to clean up the boy. I gave "cigmos" to the other three as they had asked.

The boy-san looked good except for some sores on his left leg. His sores were dirty, smelly, and full of pus. After cleaning them and applying iodine, I applied a small battle dressing to the area. The fire team with the four Vietnamese and I humped back to where the rest of our unit was. We were told via RTO (radio telephone operator) to move to a nearby hill and a chopper would take the Vietnamese to a refugee camp. We blindfolded the four Vietnamese and proceeded to where they would be picked up. They were all carrying Chu-Hoi bags with their personal things inside.

About an hour later a chopper came and picked up the refugees. They were going to a resettlement camp or something like that. We had blindfolded them so they wouldn't see how many of us there were, what we were carrying, or our exact location.

About a week to 10 days later we came upon a group of about 20 mama- and baby-sans. There were no men but for that same boy I had treated earlier.

A fire team was checking out the area ahead of us when a firefight erupted. The North Vietnamese had been setting up an ambush for us, but it was broken up. ❑

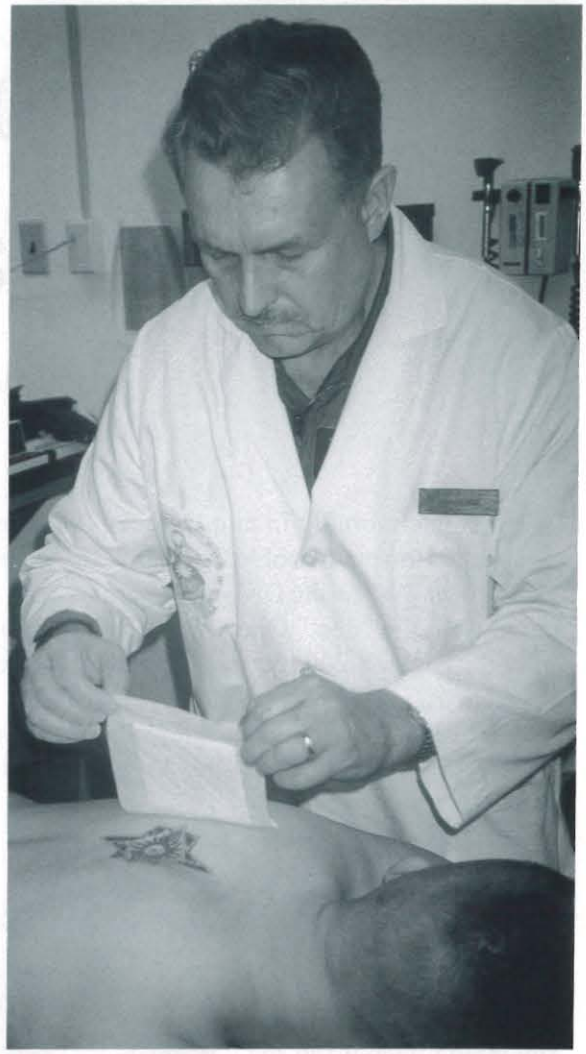
Photo by the author

The Marine leading the boy was 17 or 18 and new in country. The boy was but a few years younger.

Dr. Dimitry was a hospital corpsman (HM3) serving with M Company, 3rd Battalion, 7th Marines, 1st Marine Division in Vietnam. He resides in Rochester, NY.

Navy Flight Surgeon Pursues Wound Care

CDR Ralsa F. Durham, MC, USN



The practice of "wound care" can be traced back historically to the early annals of medicine. Patients with bedsores or decubitus ulcers have been treated over the years with a variety of remedies ranging from historical "bourbon and bismuth" to today's "intelligent dressings." The familiar call for "Corpsman Up!" echoing across the battlefield in World War II signaled the Navy corpsman to come running, finding often a variety of battlefield wounds. Armed with his unit-1, the hospital corpsman was thoroughly trained to fill the wound cavity immediately with sulfa powder and cover it with a "battle dressing." At that time the emphasis was mainly on cleaning, removal of debris, and providing protection from further damage.

The Navy Medical Department has been faced with wound patients during war and peace. In the initial evaluation and treatment of battlefield casualties, the corpsman was forced to improvise often using unorthodox approaches. For years, Betadine and Dakin's Solution have traditionally been included in the Navy corpsman's medical armamentarium and considered to be appropriate for the treatment of wounds.

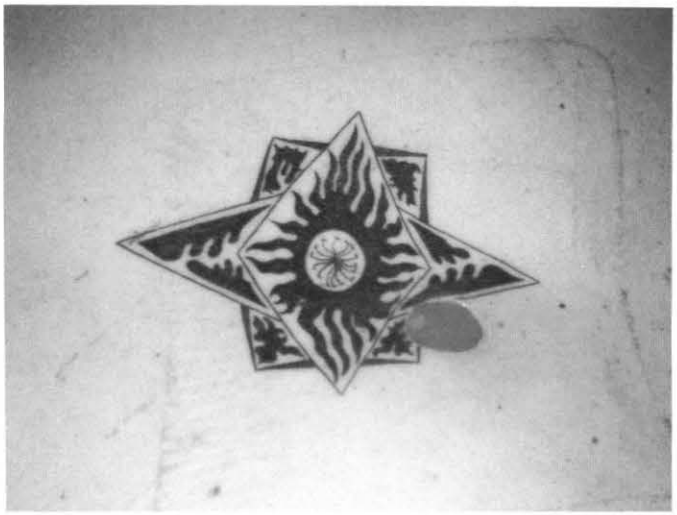
Today the development of new technologies has led to the importance of translating new research findings into the clinical approach to both acute and chronic wounds. Research now argues against the use of Betadine and Dakin's Solution due to their cytotoxic effects on normal healing tissue. This change in "mindset" suggests that the Navy Medical Department move toward incorporating this new information into the training of our corpsmen, making them "wound ready" for future battlefields.

The practice of wound care is fast becoming a leading topic at medical conferences throughout the country. Recently completed research resulted in the development of numerous "breakthrough" technologies that can significantly accelerate wound healing.

I am a practicing Navy flight surgeon at the Marine Corps Air Station in Beaufort, SC, and have chosen to dedicate my "second career" to advancing this previously underserved area of medicine.

Military medicine has considered "wound care" an acute problem, focusing on repair and return of the soldier to the front as soon as possible. With this emphasis, wound care technologies historically have been tracked among intelligence topics where man is indeed considered to be the limiting factor. I believe that the Navy's hospital corpsman is the "purveyor" of wound care and should be kept apprised

Photos by Deborah Durham



The author applies one of the new collagen-based dressings to an excised, infected tatoo.

of all new treatments available within the military and private sector. With over 10 years in private practice in wound care, I am keenly aware of the need to develop systems to translate this new information into clinical practice.

Current theories of wound care treatment are diversified as to their technical complexity but seem to focus on the need to translate theory into practice. To achieve this goal, a closer collaboration between clinicians, laboratory scientists, and the manufacturers of wound care management materials must be established. Once the problems of patient care have been identified, clinical practitioners need to collaborate with the scientific community to help solve problems.

The cellular and biochemical processes required for wound healing are well described in the literature. Figure 1 summarizes these processes and divides wound healing into four interdependent phases. A normal clotting mechanism is initially necessary to trigger the succeeding events. During this stage, hemostasis takes place where vasoactive substances trigger an inflammatory response with polymorphs and macrophages being released in large numbers into the wound. Collagen is then formed from the fibroblasts present and matures over time to ensure the tensile strength of the wound.

Modern wound therapy is designed to promote tissue healing to as near normal as possible. However, studies dating back as early as the 1950's show that the tensile strength of subcutaneous tissue can only reach 70 percent of the pre-wounded level. Wound healing, therefore, is far from complete despite the presence of full epithelialization and closure. Compromised tensile strength of underlying tissue makes "surveillance" even more important for those patients who are at risk for breakdown. In fact, Cardiff demonstrated that incisional hernia can occur up to 5 years postoperatively.

Studies have produced large numbers of both systemic (Table 1) and local factors (Table 2) that can affect wound healing. The formulation of an appropriate treatment plan should be designed to identify and control as many of these factors as possible. It is important to recognize that many factors that can be controlled in an experimental environment cannot be controlled with patients on the battlefield. The local factors in Table 2 fail to obviate the need for good surgical technique and the use of appropriate surgical materials.

Historically, wound healing is classified either by primary or secondary intention. Primary refers to the suturing of a wound while secondary is allowing a wound to fill with healthy granulation tissue. This definition is adequate to describe the overall cellular processes but should be expanded when needed to account for the other problems seen in clinical practice. An example might be to include acute versus chronic wounds or an appendectomy compared to a recalcitrant venous ulcer.

In addition to the amount or time required, the type of tissue should be considered, i.e., the healing of skin as opposed to bone. Infected as compared to noninfected wounds require alternative classification just like wounds seen in a hospital environment versus those encountered on the battlefield. Given these alternative classifications, wounds that heal by secondary intention usually cause the most difficulty.

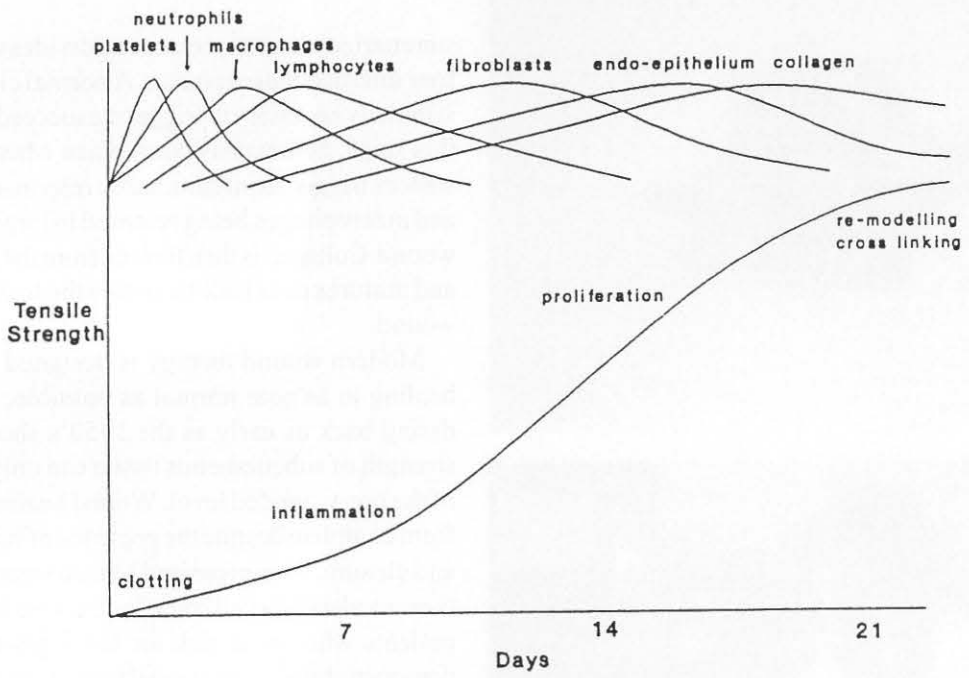


Figure 1

In my instruction to corpsmen, I stress that wound healing begins at the point of injury. Wound contraction may either be beneficial or harmful to the patient. Unimpeded contraction and premature closure with debris left in the wound can lead to catastrophic results. Cleaning and irrigation of the wound should always precede any further treatment protocol.

Table 1 Systemic Factors Affecting Wound Healing
- Age
- Anemia
- Anti-Inflammatory Drugs
- Cytotoxic Drugs
- Diabetes Mellitus
- Systemic Infection
- Jaundice
- Malignant Disease
- Malnutrition
- Obesity
- Temperature
- Trauma
- Uremia
- Vitamin Deficiency
- Zinc Deficiency

Table 2 Local Factors Affecting Wound Healing
- Blood Supply
- Denervation
- Hematoma
- Lack of Protection
- Local Infection
- Mechanical Stress
- Radiation
- Surgical Technique
- Suture Material and Technique
- Type of Tissue

Wound Examination

Wound examination should be comprehensive and specific with respect to shape, size, and color. Baseline photography should be used in conjunction with precise measurements to begin monitoring the wound's progress. Wounds that are tracking away from the surface should be probed to ensure the maintenance of free drainage. If tunneling develops, either surgery or a dressing that completely fills the sinus should be considered. The wound should be measured according to length, width, and depth upon each examination. This will provide an objective measurement of progress and help determine whether a wound has decreased in size over time.

Infection in Granulating Wounds

Infection is a cause of significant delay in wound healing. Treatment is necessary to remove the invading organisms and return the healing of the wound to normal. Studies have shown that wound swabbing is not as important as being able to recognize abnormal granulation tissue seen in infected wounds. The characteristics of unhealthy granulation tissue usually include:

- Superficial bridging
- Friable tissue
- Bleeding on contact

- Wound pain
- Delay in healing

The decision to treat with an antibiotic should be made prior to receiving the results of the wound swab. Research suggests that patients with infected granulating wounds require oral antibiotics for 2 to 4 weeks to achieve a return of normal healthy granulating tissue.

Antiseptics and Cleaning Solutions: A New "Mindset"

The advantages of avoiding antiseptics and cleaning solutions in wound care is supported by the research. The routine use of antiseptics should be avoided as they only lower the bacterial colonization in the wound for a short time. All chemical agents can potentially harm the actively dividing cells that are attempting to heal the wound. The tendency of many clinicians is to use some medicated agent when sterile water or saline is sufficient. In contemporary wound therapy, I maintain that anything introduced into a wound should be safe enough for use in the eye.

Approach to Leg Ulcers

It is important initially to establish the etiology for ulcers found in the lower extremities. Most ulcers found in the legs result from deficiencies in the venous system. However, a number of these have an arterial component difficult to diagnosis on clinical grounds. I advocate the use of Doppler measurements as a "support technology" to obtain brachial and ankle pressures. This information can prevent the clinician from applying compression to a leg with undetected arterial disease, thus retarding the healing process.

Need for Expanded Wound Therapy Education

Today there is a serious lack of knowledge and understanding of the most appropriate wound management methods. Medical schools do not include any specific training for medical students. I have observed many physicians simply referring wound patients to the nurse who has received some training (albeit outdated) in nursing school. With a natural reluctance to question their nursing instructors, many nursing students simply perpetuate outdated methods of treatment by incorporating them into current practice.

In addition to educating doctors and nurses, there is also a need to inform other medical professionals who may become involved in wound care. I believe that hospital corpsmen, as well as trained medical professionals, are uniquely qualified to help translate these new developments into "frontline medicine." Moreover, the hospital pharmacist, who is a key person in the purchasing of dressings, may soon be able to incorporate active substances into dressings that will augment wound healing. Administrators of both hospitals and long-term care facilities need to be made aware that although the new therapies carry higher price tags, the long-term savings are significant not withstanding the increased quality of life. Finally, the patients themselves need to be educated as to what is "appropriate" care so they can be aware of an effective therapy that will ensure their return to a normal lifestyle. The education of all groups is necessary if we are to achieve a quantum leap in improved wound care.

Conclusion

Everyone involved in wound care should have a sound knowledge of the stages of wound healing. However, the knowledge of staging is not sufficient to administer correctly the myriad of newly developing therapies. All the technologies incidental to wound care should be "packaged" so that identification, assessment, and treatment protocols can be developed. The breakdown of interprofessional barriers is important so that access to all professional groups for particularly difficult to heal wounds would be possible. As wound care is increasingly recognized as a legitimate area of interest and expertise, this "intensive care" model may become a reality.

Research is producing more aggressive active ingredients to include the introduction of growth factors. The expense of these efforts makes it important to ensure that effective clinical trials are carried out. The manufacturers of these "intelligent dressings" cannot focus on products whose effectiveness is assessed chiefly in the laboratory. Participation with clinicians is vital to ensure that new therapies meet the needs of the patients. In addition to good quality, the industry must be responsive to providing good educational programs for the other diverse groups ready to enter the wound care environment. Both industry and health care professionals are today poised in a cooperative spirit that can raise the standards of wound care and increase the access to care for wound care patients and this "disease of the 1990's." ❑

Dr. Durham is OIC of the Marine Corps Air Station Branch Medical Clinic, Beaufort, SC.

Correction

In the November-December 1997 issue on page 22, LT Martha Cutshall and LT Sarah Shea were inadvertantly placed in the wrong corps. They are both Nurse Corps officers. We regret the error.

Naval Medical Research and Development Command Highlights

●Long-Term Followup of Health and Readiness Shows Sailors Staying Fit

In 1982, the Navy established a comprehensive Health and Physical Readiness Program to promote health and physical fitness, set minimum standards for fitness and weight control, and emphasize the need for all active duty personnel to participate in lifestyle behaviors that promote good health. Researchers at Naval Health Research Center (NHRC), San Diego, CA, were instrumental in establishing the Navy's physical readiness standards, developing the methods and equations for assessing body fat, and initiating a comprehensive program to evaluate health promotion interventions, such as smoking cessation, alcohol rehabilitation, weight control. In a recent NHRC study to evaluate trends in health behaviors and physical readiness, researchers conducted a followup survey of over 5,500 Navy personnel who had participated in the earlier NHRC studies in the 1980's. Overall, the researchers found that career Navy people were: (1) maintaining a vigorous level of physical activity, (2) eating a significantly more healthful diet, (3) exhibiting markedly greater muscle mass, (4) sustaining body fat levels that remained within the Navy's established limits, and (5) demonstrating significantly improved physical fitness scores despite being older. Much of the credit for these effects is believed to be due to the fact that Navy personnel have been influenced by the Navy's health promotion program for more than a decade. The study concluded that these participants represent the career naval force who are somewhat older, higher-ranked, service-committed personnel who exemplify a new level of physical readiness and serve as models for more junior members of the fleet.

●Researchers Use Cutting Edge Technology to Help Develop New Marine Combat Boot

One of the biomechanical risk factors for musculoskeletal injury is impact shock generated by repeated impact between the foot and the ground that is transmitted through the musculoskeletal tissues of the lower limb and spine. As part of an ongoing program to reduce musculoskeletal injuries in training populations, researchers at Naval Health Research Center, San Diego, CA, were asked by the Marine Corps to be part of a team to evaluate the biomechanical aspect of current commercially available boots and government-issued boots and to provide recommendations for an improved design. The research team tested existing Marine Corps leather and jungle boots for baseline performance characteristics and compared them with commercially available boots. The biomechanical measurements covered two categories: (1) physical tests aimed at mechanically characterizing the entire boot and the boot's component materials, and (2) human testing to quantify various physical properties and the body's response to wearing boots. Specific emphasis was placed on shock absorption, energy return, and stability. The new boot design developed from these tests has a rubber outsole for durability and a polyurethane midsole and insole for cushioning. In addition to the increased cushioning of the sole, there is increased cushioning throughout the boot with a semi-wedged midsole/outsole for better traction and ground contact. Other features include a softer, more flexible waterproof leather. Another important feature is the revised lacing system that extends further down the toe to maximize foot fit and function. The final specifications for the new boot were derived from focus groups and wear tests with Marine Corps Infantry and Fleet Marine Force personnel. The new boot is an excellent example of how Navy medical researchers work hand-in-hand with operational forces.

For more information on these and other research efforts contact Doris M. Ryan, Deputy Director, External Relations, at DSN 295-0815, Commercial 301-295-0815, E-mail ryand@mail-gw.nmrdc.nnmc.navy.mil, or FAX 301-295-4033.

For more information on the Naval Medical Research and Development Command contact the homepage at http://ww.dmso.mil/NMRDC/

Navy Medicine 1956

BUMED Archives

LCDR John H. Ebersole, MC, uses chemical separation of radioactive isotopes to determine source of radiation in the nucleonics laboratory aboard USS *Nautilus* (SSN-571), the world's first nuclear-powered submarine.

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